

Integrated Web Application Designed For an Educational Institution

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ABSTRACT

This project is about applying social networking technologies in an educational institute. We all know about Facebook, twitter, whatsapp and so on. We use these for sharing our ideas chatting with friends. These applications provide us many features such as posting pictures, status, tweets etc. None of us are thinking about how to apply these techniques for educational purposes. Think about a web application in which we can chat with our college friends at same time checking our attendance and sessional marks in the same web app, that's what we are going to make as our final year project. An application in which we can share pictures, study materials, status and check our own study course status, online chatting with teachers and a vast study material library with likes and comment features all these clustered as a single web application based on our own college.

1. Introduction

Some may think why we should apply social networking technologies on an educational institution while we are already having many advanced social networking sites. Students use these social networking sites in their own way in an uncontrolled manner. They create pages, groups, group chats etc. based own their college with their own administration. Principal and other staffs have no access to this. So we need to create a website with all social networking technologies integrated with the students record management system, digital library for study materials etc., this will draw attention of students from using other social networking sites into our newly created educational site. There are many social networking sites which are advanced and they are very necessary to our society, we are not creating a web app to replace them but a small website based on an educational institution and the number of users are limited to the number of members in that institute. This paper will describe about the benefits of applying this technology for an educational institute, and its goal, features etc.

2. Background

Many different instances of social networking sites exist. However, there is much commonality in their technical features. Users of social networking sites can share personal information through their profile, connect with other users of the sites who might be known as contact or friends, upload, tag and share multimedia content that they have created, link others to a variety of web-accessible content, initiate or join sub-sets of user groups based on common interests or pursuits.

It has been argued that these social networking sites facilitate informal learning for the participants. Researchers have analyzed interaction that has taken place in social networking sites and have identified sharing of ideas, providing of peer feedback, and engagement in critical thinking [2]. Certainly there is a well-developed body of literature that supports informal learning [3]. Marsick and Watkins suggest that informal learning is integrated with daily routines; be initiated by either internal or external triggers; is not a highly conscious activity of the learner; may occur by chance; is an inductive process of reflection and action; and, involves learning by linking to others.

The question is whether we can bring together elements of models and evidence from informal learning theory with the observations of current and emerging behaviors in social networking sites to inform formal education. Industry and education commentators and policymakers call for the use of such technologies in schools and universities. There are necessary provisos associated with such directions. The 2008 Horizon Report suggests, "...the challenge faced by the educational community is to seize those opportunities [for use of social networking and other collaborative tools] and develop effective ways to measure academic progress as it happens." [4].

To date, research related to social networking and Web 2.0 tools that support social networking is limited. Where the research does exist, much has focused on

identity, network structures, privacy, and technological issues [5]. This research may inform the potential for use of the concept and the technologies of social networking in education. However, research that is based in an educational perspective is critical if we are to make evidence-based decisions on how to effectively use the technologies and constructs of social networking in formal education settings.

3. Social networking in education

The relative newness of the research into the use of Web 2.0 social networking technologies to support formal educational experiences necessitates a case study approach. Such methodology allows for investigation of complex social phenomena by the examination of a set of rich data [6].

From the context of significant research in computer mediated communication in educational settings and using constructivist underpinnings, Gunawardena, Lowe, and Anderson put forward a model for phases of learning which occur at both the individual and social level [7]. In the decade since its development, the model has since been applied by a range of researchers investigating educationally focused social interaction facilitated by a range of technologies. The model is comprised of five phases:

1. Sharing/Comparing,
2. Dissonance,
3. Negotiation/Co-construction,
4. Testing Tentative Constructions, and
5. Statement/Application of Newly-Constructed Knowledge.

This model suggests successive stages of increasingly higher mental functions. The model can be, and is most often, used to analyze the discourse and social interaction that occurs among learners in an online environment. However, it can also be used to analyze the learners' perceptions of their learning experience as reported through other data opportunities such as interviews and written reflections. This model was used to investigate the experience of using social networking technologies in a formal learning context.

4. Integrated web application

4.1 Online chat

In this typical online chat program, the window to the left shows a list of contacts, and the window to the right shows a conversation between the user and one of those contacts

Online chat may refer to any kind of communication over the Internet that offers a real-time transmission of text

messages from sender to receiver. Chat messages are generally short in order to enable other participants to respond quickly. Thereby, a feeling similar to a spoken conversation is created, which distinguishes chatting from other text-based online communication forms such as Internet forums and email. Online chat may address point-to-point communications as well as multicast communications from one sender to many receivers and voice and video chat, or may be a feature of a web conferencing service.

Online chat in a less stringent definition may be primarily any direct text-based or video-based (webcams), one-on-one chat or one-to-many group chat (formally also known as synchronous conferencing), using tools such as instant messengers, Internet Relay Chat (IRC), talkers and possibly MUDs. The expression online chat comes from the word chat which means "informal conversation". Online chat includes web-based applications that allow communication – often directly addressed, but anonymous between users in a multi-user environment. Web conferencing is a more specific online service, that is often sold as a service, hosted on a web server controlled by the vendor.

4.2 Attendance management

Attendance management is important to every single organization, it can determine whether or not a business will be successful in the future. Businesses will have to keep a track of employees, this being their main concern and a lot of other things. Monitoring attendance helps in the long term for a business, as an employer will be able to tell which employees arrive early, which arrive late and who has the most absences without any valid reason. This could help an employer in deciding which employees are most suitable to work in the business, having employees who arrive to work on time means that the day-to-day tasks of the organization will be fulfilled. Employees within an organization should know about their employer's attendance and absence policy, so that they are aware of what is required of them.[1] Attendance management is also a health and safety procedure something in which that has to be carried out. It is important because in case of an emergency that was to arise in a workplace like a fire, then if they register in the company they will know how many people are inside a building. It is important to manage a set of workforce as it can lead to higher profits as well as an increase in productivity.[2] If you have a look on the other side of what will happen if a business does not manage their attendance, it will mean that they will have no sort of information to look back on in case if it is needed in the future. They also will not be able to keep a track on their employees on a day-to-day basis which means there is no leadership in place.[3]

4.3 Student information system

A student information system (SIS), student management system, school administration software or student administration system is a management information

system for education establishments to manage student data. Student Information Systems (often abbreviated as SIS systems) provide capabilities for registering students on courses, documenting grading transcripts and results of student test and other assessment scores, build student schedules, track student attendance, and manage many other student-related data needs in a school. A SIS should not be confused with a learning management system or virtual learning environment, where course materials, assignments and assessment tests can be published electronically.

4.4 Digital library

A digital library is a special library with a focused collection of digital objects that can include text, visual material, audio material, video material, stored as electronic media formats (as opposed to print, microform, or other media), along with means for organizing, storing, and retrieving the files and media contained in the library collection. Digital libraries can vary immensely in size and scope, and can be maintained by individuals, organizations, or affiliated with established physical library buildings or institutions, or with academic institutions.[1] The digital content may be stored locally, or accessed remotely via computer networks. An electronic library is a type of information retrieval system. The term digital libraries was first popularized by the NSF/DARPA/NASA Digital Libraries Initiative in 1994.[2] These draw heavily on Vannevar Bush's essay *As We May Think* (1945), which set out a vision not in terms of technology, but user experience. The term virtual library was initially used interchangeably with digital library, but is now primarily used for libraries that are virtual in other senses (such as libraries which aggregate distributed content). In the early days of digital libraries, there was discussion of the similarities and differences among the terms digital, virtual, and electronic.[3]

In the context of the DELOS, a Network of Excellence on Digital Libraries, and DL.org, a Coordination Action on Digital Library Interoperability, Best Practices and Modelling Foundations, Digital Library researchers and practitioners and software developer produced a Digital Library Reference Model[4][5] which defines a digital library as: "A potentially virtual organization, that comprehensively collects, manages and preserves for the long depth of time rich digital content, and offers to its targeted user communities specialised functionality on that content, of defined quality and according to comprehensive codified policies." [6]

A distinction is often made between content that was created in a digital format, known as born-digital, and information that has been converted from a physical medium, e.g. paper, through digitization. It should also be noted that not all electronic content is in digital data format. The term hybrid library is sometimes used for libraries that have both physical collections and electronic

collections. For example, American Memory is a digital library within the Library of Congress.

Some important digital libraries also serve as long term archives, such as arXiv and the Internet Archive. Others, such as the Digital Public Library of America, seek to make digital information from various institutions widely accessible online.

4.5 Searching

Most digital libraries provide a search interface which allows resources to be found. These resources are typically deep web (or invisible web) resources since they frequently cannot be located by search engine crawlers. Some digital libraries create special pages or sitemaps to allow search engines to find all their resources. Digital libraries frequently use the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) to expose their metadata to other digital libraries, and search engines like Google Scholar, Yahoo! and Scirus can also use OAI-PMH to find these deep web resources.

There are two general strategies for searching a federation of digital libraries:

1. distributed searching, and
2. searching previously harvested metadata.

Distributed searching typically involves a client sending multiple search requests in parallel to a number of servers in the federation. The results are gathered, duplicates are eliminated or clustered, and the remaining items are sorted and presented back to the client. Protocols like Z39.50 are frequently used in distributed searching. A benefit to this approach is that the resource-intensive tasks of indexing and storage are left to the respective servers in the federation. A drawback to this approach is that the search mechanism is limited by the different indexing and ranking capabilities of each database; therefore, making it difficult to assemble a combined result consisting of the most relevant found items.

Searching over previously harvested metadata involves searching a locally stored index of information that has previously been collected from the libraries in the federation. When a search is performed, the search mechanism does not need to make connections with the digital libraries it is searching - it already has a local representation of the information. This approach requires the creation of an indexing and harvesting mechanism which operates regularly, connecting to all the digital libraries and querying the whole collection in order to discover new and updated resources. OAI-PMH is frequently used by digital libraries for allowing metadata to be harvested. A benefit to this approach is that the search mechanism has full control over indexing and ranking algorithms, possibly allowing more consistent results. A drawback is that harvesting and indexing systems are more resource-intensive and therefore expensive.

4.6 Advantages

The advantages of digital libraries as a means of easily and rapidly accessing books, archives and images of various types are now widely recognized by commercial interests and public bodies alike.

Traditional libraries are limited by storage space; digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library can be much lower than that of a traditional library. A physical library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Digital libraries may reduce or, in some instances, do away with these fees. Both types of library require cataloging input to allow users to locate and retrieve material. Digital libraries may be more willing to adopt innovations in technology providing users with improvements in electronic and audio book technology as well as presenting new forms of communication such as wikis and blogs; conventional libraries may consider that providing online access to their OP AC catalog is sufficient. An important advantage to digital conversion is increased accessibility to users. They also increase availability to individuals who may not be traditional patrons of a library, due to geographic location or organizational affiliation.

- No physical boundary. The user of a digital library need not to go to the library physically; people from all over the world can gain access to the same information, as long as an Internet connection is available.
- Round the clock availability A major advantage of digital libraries is that people can gain access 24/7 to the information.
- Multiple accesses. The same resources can be used simultaneously by a number of institutions and patrons. This may not be the case for copyrighted material: a library may have a license for "lending out" only one copy at a time; this is achieved with a system of digital rights management where a resource can become inaccessible after expiration of the lending period or after the lender chooses to make it inaccessible (equivalent to returning the resource).
- Information retrieval. The user is able to use any search term (word, phrase, title, name and subject) to search the entire collection. Digital libraries can provide very user-friendly interfaces, giving click able access to its resources.
- Preservation and conservation. Digitization is not a long-term preservation solution for physical collections, but does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use. Digitized collections and born-digital objects pose many preservation and conservation concerns that analog materials do not. Please see the following "Problems" section of this page for examples.
- Space. Whereas traditional libraries are limited by storage space, digital libraries have the potential to store

much more information; simply because digital information requires very little physical space to contain them and media storage technologies are more affordable than ever before.

- Added value. Certain characteristics of objects, primarily the quality of images, may be improved. Digitization can enhance legibility and remove visible flaws such as stains and discoloration.
- Easily accessible.

5. Existing System

Social Networking Systems

- There are many powerful social networking sites and apps like Facebook, whatsapp, twitter etc. which are useful in many ways and are hard to replace.

Education Management System

- Most of the colleges made student records online.
- Some colleges have digital libraries.
- Live attendance management system is successfully implemented in some colleges.

Problems in Existing System

Social Networking Systems

- Conflicts between students due to commenting in Facebook is a major issue in many colleges.
- Students and staffs are not so much connected in the existing social networking sites.

Education Management System

- Most of the student management system maintains a low quality.
- Teaching staffs shows laziness in uploading study materials and are not much interested.
- Most educational institutes lacks a good digital library.

6. Proposed System

- Bring an advanced student record management system.
- Reduce the misuse of FB and whatsapp which cause conflicts in many college campuses.
- Increase communication and friendship among students and staffs in a controlled manner.
- Digital library with new features which will keep the library more live and vast.
- Integrating all these in one web project.

The system was implemented by a different user to verify that the system works effectively and is giving confidence on the new system for the use that it will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover, an evaluation, of change over methods.

One of the most important development activities is the coding of programs. The system flow charts are converted into modular programs. They have to be compiled, tested and debugged. The user requirements are achieved through building software keeping in mind of their requirements.

This software is implemented with 2 modules

1. Social Networking Part
2. Educational Management Part

7. Future Enhancement

It is not possible to develop a system that makes all the requirements of the user. User requirements keep changing as the system is being used. Software development is a very flexible and much functionality can be added it, to enhancement performance of the project title "Integrated Web Application Designed for an Educational Institution" those options that are not included in the software can be included to improve the efficiency of the software. The system is developed such a way that if any modifications and enhancements are needed in future, can be done at ease without disturbing the proper working of the system.

8. Conclusion

Our project will be very useful since we will be integrating social networking with the essential features needed for an educational institute. It is not possible to develop a system that makes all the requirements of the user. User requirements keep changing as the system is being used. Software development is a very flexible and much functionality can be added it, to enhancement performance of the project title "Integrated Web Application Designed for an Educational Institution" those options that are not included in the software can be included to improve the efficiency of the software. The system is developed such a way that if any modifications and enhancements are needed in future, can be done at ease without disturbing the proper working of the system

Thus this project is sure to make an impact in the current scenario where this software is actually a necessary in an educational institution.

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